

Abstract Submitted  
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**Non-Axisymmetric Disruption SOL Current Measurement In DIII-D Plasmas<sup>1</sup>** JOSHUA CABRERA, J. HANSON, G. NAVRATIL, J. BIALEK, Columbia Univ — J. Cabrera, J. Hanson, G. Navratil, J. Bialek, Columbia Univ  
During tokamak disruptions known as vertical displacement events (VDEs) currents which flow between the plasma core and plasma facing components can reach nearly 20% of the total plasma current. These scrape off layer (SOL) currents are thought to affect the dynamics of plasma disruption. We have made use of an array of tile current monitors installed on the DIII-D tokamak to perform low toroidal mode number ( $n \leq 2$ ) analysis on SOL currents from such VDEs. In all cases examined (over 30 shots) currents exhibited toroidal asymmetry with toroidal peaking factor  $\sim 2$ . Strong initial peaking in  $n=1$  current measurements are correlated with  $n=1$  magnetic fluctuations during VDEs. Following the peak SOL current and after observation of the final last closed flux surface (LCFS),  $n=1$  mode activity  $\sim 20\%$  of  $n=0$  peak amplitude persists for  $\sim 10$ ms. Predictions from the VALEN-IVB simulation code utilizing current profile reconstructions from magnetic sensor array measurements will be compared with SOL current measurements. Possible effects of these SOL currents on plasma dynamics during disruption are considered.

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